AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for the automatic routing of data packets in an optical data packet stream that are each separated by a time interval including no data, comprising:

converting route information to allocated frequency mixes at the transmitter end;

producing route signals by modulating a carrier signal with the frequency mixes, wherein a carrier frequency selected for the route signals is half a data transmission rate and the frequency mixes include audio frequencies;

placing at least one of the route signals produced in front of and after at least one data packet;

transmitting the data packet including the route signals;

evaluating at the receiver end, the route signals in terms of the frequency mixes used for the modulation; and

switching the data packet using the route information obtained from the frequency mixes.

2. (Currently amended) A method for the automatic routing of data packets in an optical data packet stream that are each separated by a time interval including no data, comprising:

converting route information to allocated frequency mixes at the transmitter end;

producing route signals by modulating a carrier signal with the frequency mixes, wherein a carrier frequency selected for the route signals is half a data transmission rate and the frequency mixes include audio frequencies;

placing at least one of the route signals produced in front of or after at least one data packet;

transmitting the data packet including the route signals;

evaluating at the receiver end, the route signals in terms of the frequency mixes used for the modulation; and

switching the data packet using the route information obtained from the frequency mixes.

3. (Original) The method as claimed in claim 2, wherein the route information is converted to the route signals by amplitude modulation of the carrier signal with the frequency mixes.

4. (Original) The method as claimed in claim 2, wherein the route information is converted to the route signals by phase modulation of the carrier signal with the frequency mixes.

5. (Original) The method as claimed in claim 2, wherein:

a carrier frequency selected for the route signals is one of a data transmission rate and half the data transmission rate, and

audio-frequency modulation frequencies are used for modulating the route signals.

6. (Currently amended) The method as claimed in claim 2, wherein a connection is terminated using one of the route signals, said one of the route signals succeeding the data packet.

7. (Currently amended) An optical transmission system having automatic routing for data packets that are each separated by a time interval including no data, comprising:

a transmission unit and a reception unit;

a conversion unit at the transmitter end for converting route information for at least one data packet to route signals produced by modulating a carrier signal with a frequency mix and for adding the route signals at least one of in front of and after the data packet, wherein a carrier frequency selected for the route signals is half a data transmission rate and the frequency mix includes audio frequencies;

a transmission device for transmitting the data packet, including the route signals;

an evaluation unit, at the receiver end, for detecting and evaluating the route signals; and

a switching unit for switching through the data packet using the route information ascertained by evaluating the route signals.

8. (Currently amended) An optical transmission system having automatic routing for data packets that are each separated by a time interval including no data, comprising:

a transmission unit and a reception unit;

a conversion unit at the transmitter end for converting route information for at least one data packet to route signals produced by modulating a carrier signal with a frequency mix and for adding the route signals at least one of in front of or after the data packet, wherein a carrier frequency selected for the route is half a data transmission rate and the frequency mix includes audio frequencies;

a transmission device for transmitting the data packet, including the route signals;

an evaluation unit, at the receiver end, for detecting and evaluating the route signals; and

a switching unit for switching through the data packet using the route information ascertained by evaluating the route signals.

9. (Currently amended) The optical transmission system as claimed in claim 8, further comprising a synchronization unit that uses the carrier signal of one of the route signals, said one of the route signals preceding the data packet, for ~~the purpose of~~ clock synchronization.

10. (Original) The optical transmission system as claimed in claim 8, further comprising an optical splitter at the receiver end for isolating part of a data packet stream, said part being forwarded to the evaluation unit.

11. (Original) The optical transmission system as claimed in claim 8, further comprising an optical delay element, at the receiver end, for delaying the data packet stream by a minimum length, said minimum length comprising a switching time required for evaluating a preceding one of the route signals and a switching time required for switching through a route.

12. (Currently amended) The optical transmission system as claimed in claim 9, wherein the optical delay element is arranged between ~~the~~ an optical splitter and ~~the~~ a switching unit.